

# WO9801337

Publication Title:

## WETSUIT WITH FOLDABLE COLLAR

Abstract:

Abstract of WO 9801337

(A1) A wetsuit having a trunk portion (21), and a foldable collar (24) surrounding a neck opening whereby in an unfolded state an access opening (23) through the top of the trunk portion (21) is provided which is sufficiently large, or sufficiently large when stretched, to allow body entry or removal therethrough, and a Velcro<sup>3</sup> or like fastener (26, 27) extending between foldable portions (25) of the collar (24) to draw the collar (24) into, and hold it at, a folded condition sitting snugly around the neck of the wearer. Neck pieces (29, 30) are also provided attached to the foldable collar (24) and adapted to be stretched over the head of the wearer to enhance the water seal around the neck of the wearer.

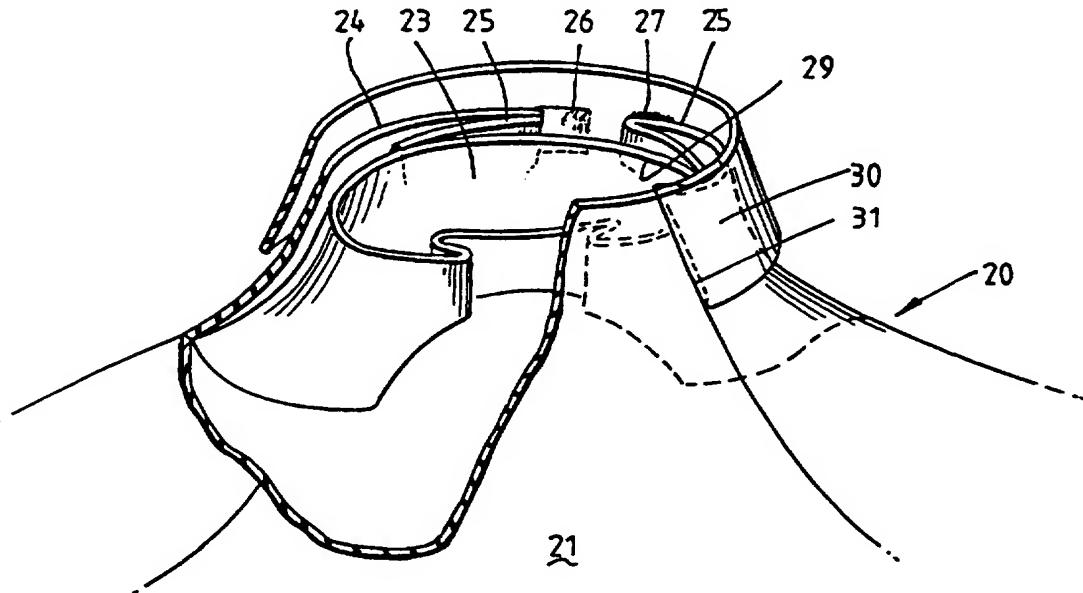
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## (54) Title: WETSUIT WITH FOLDABLE COLLAR



## (57) Abstract

A wetsuit having a trunk portion (21), and a foldable collar (24) surrounding a neck opening whereby in an unfolded state an access opening (23) through the top of the trunk portion (21) is provided which is sufficiently large, or sufficiently large when stretched, to allow body entry or removal therethrough, and a Velcro® or like fastener (26, 27) extending between foldable portions (25) of the collar (24) to draw the collar (24) into, and hold it at, a folded condition sitting snugly around the neck of the wearer. Neck pieces (29, 30) are also provided attached to the foldable collar (24) and adapted to be stretched over the head of the wearer to enhance the water seal around the neck of the wearer.

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## WETSUIT WITH FOLDABLE COLLAR

Technical Field

15 This invention relates to improvements in  
wetsuits, and more particularly to improvements in wetsuits  
without zippers.

Background Art

20 With most conventional wetsuits, in order to gain  
body access to or from the suit, zippered openings are  
provided through the body of the wetsuit at appropriate  
positions usually from the neck of the suit downwardly and  
of sufficient length to provide a sufficiently large  
opening when unzipped to allow body access to or from the  
25 wetsuit, whereafter the zipper is closed. The requirement  
for zippers reduces the flexibility of the wetsuit.

30 In order to overcome the problems with zippered  
wetsuits, various wetsuits without zippers have been  
developed. In the present application, when wetsuits are  
described as being without zippers, what is being referred  
to is that the body access opening is not a zippered  
opening. In some wetsuits zippers may be provided, for  
example, at the wrists or ankles. However, whether such  
35 zippers are present or not is not relevant to the invention  
of the present application.

One such wetsuit without zippers is disclosed in US patent specification 4,809,364, and comprises a trunk portion, leg portions integral with the lower trunk portion, a neck portion, and arm portions integral with the 5 trunk and neck portions. The trunk and neck portions include a first section integral with the first arm portion and a second section integral with the second arm portion, the first section defining an opening to pass a second arm portion therethrough with the sections being relatively 10 separable to provide access to or from the wetsuit with body entry being relatively downwardly into the wetsuit. One of the sections overlaps the other section when the 15 suit is worn by the user and seals off any opening between the sections. One of the sections has a neck opening therethrough which is drawn over the head of the wearer when the sections are overlapped.

Another wetsuit without zippers in use, is one which utilises a truncated neck panel hingedly attached to 20 the remainder of the suit thereof, and having a neck aperture therethrough. When the neck panel is hinged forwardly down across the front of the suit an opening at the top of the suit, with some stretching, can be made sufficiently large for body access to or from the suit. 25 After body entry the neck panel is pulled upwardly and then down over the head of the wearer with the wearers head passing through the neck aperture in the neck panel which may be also stretched to accommodate passage of the head through the aperture.

30

With both the wetsuits without zippers referred to above difficulties are encountered in ensuring adequate water seals and with ease of access.

35

It is therefore an object of the present invention to provide a unique wetsuit without zippers which overcomes, or at least minimises, the flexibility problems

with zippered wetsuits and known wetsuits without zippers, and the water seal and ease of access problems with the known wetsuits without zippers referred to above.

5      Disclosure of the Invention

In accordance with the present invention there is provided a wetsuit having a trunk portion, and leg portions integral therewith, and a foldable collar surrounding a neck opening whereby in the unfolded state an access opening through the top of the trunk portion is provided which is sufficiently large, or sufficiently large when stretched, to allow body entry or removal therethrough, and means to draw the collar into, and hold it at, a folded condition fitting snugly around the neck of the wearer.

15

Preferably a further collar piece is provided within said foldable collar to maintain tension on the front of the foldable collar when in the folded condition.

20      Brief Description of the Drawings

Two preferred embodiments of the invention will now be described with reference to the accompanying drawings, in which;

25      Figure 1 is a front view of the upper torso and neck opening of the first preferred embodiment of the wetsuit with the neck opening thereof open to allow body access to, or from, the wetsuit,

30      Figure 2 is a front view of the wetsuit of Figure 1 with the neck opening drawn into position snugly around the neck of a wearer,

35      Figure 3 is a plan view of the top of the wetsuit in the condition shown in Figure 1,

Figure 4 is a plan view of the top of the wetsuit in the condition shown in Figure 2,

5 Figure 5 is a front view of the upper torso and neck opening of the second preferred embodiment of the wetsuit, and partially cut away, with the neck opening thereof open to allow body access to, or from, the wetsuit.

10 Figure 6 is a plan view of the top of the wetsuit in the condition shown in Figure 5, and

15 Figure 7 is a plan view of the top of the wetsuit of Figures 5 and 6, but with the neck opening drawn into position snugly around the neck of a wearer.

With reference to the drawings Figures 1 to 4 of drawings, the wetsuit 10 of this first preferred embodiment of the invention has a trunk portion 11, arm portions 12, and leg portions (not shown). With reference to Figures 1 and 3 of the drawings a body access opening 13 is provided through the top of the wetsuit which, with some stretching, allows for body access into, and out of, the suit.

25 The body access opening 13 is defined by an external upstanding collar 14, having foldable portions 15 on diametrically opposite sides of the collar.

30 With the collar 14 in the unfolded condition as shown in Figures 1 and 3 the collar can be pulled and stretched to fully open the access opening 13, and body access to, and from, the wetsuit through the opening 13 is achieved with relative ease. In the folded condition of the foldable portions 15 the collar, as shown in Figures 2 and 4, is drawn snugly around the neck of the wearer.

35

In this preferred embodiment of the invention the exterior collar is drawn into the folded condition by draw

5       cords 16 one end of each of which are attached to the respective foldable portions 15, with their opposite free ends passing through a hole 17 in an adjustment member 18 through which the cords are pulled in friction engagement to hold the draw cords at the required position when the cords are drawn to pull the collar into the folded condition shown in Figures 2 and 4. An internal neckpiece 19 is also provided within the foldable external collar to maintain tension on the front of the external collar when 10 in the folded condition and also to ensure a good water seal around the neck of the wearer.

15       With reference to Figures 5 to 7 of the drawings, the wetsuit 20 of this second preferred embodiment of the invention has a trunk portion 21, arm portions 22, and leg portions (not shown). With reference to Figures 5 and 6 of the drawings a body access opening 23 is provided through the top of the wetsuit which, with some stretching, allows for body access into, and out of, the suit.

20

      The body access opening 23 is defined by an external upstanding collar 24, having foldable portions 25 on opposite sides of the access opening.

25

      With the collar 24 in the unfolded condition as shown in Figures 5 and 6 the collar can be pulled and stretched to fully open the access opening 23, and body access to, and from, the wetsuit through the opening 23 is achieved with relative ease. In the folded condition of 30 the foldable portions 25, the collar, as shown in Figure 7, is drawn snugly around the neck of the wearer.

35

      In this preferred embodiment of the invention the external collar is drawn into the folded condition by a strap 26 attached to one of the foldable portions 25, and carrying a layer of Velcro or like type material which couples with a cooperating layer 27 of Velcro or like type

material to form a Velcro or like attachment with the collar being held in the folded condition shown in Figure 7. A first neckpiece 29 is also provided within the foldable external collar and attached thereto at the rear 5 of the collar. The neckpiece 29 is adapted to be stretched and then pulled over the head of the wearer and into a position around the neck within the foldable collar to ensure a good water seal around the neck of the wearer.

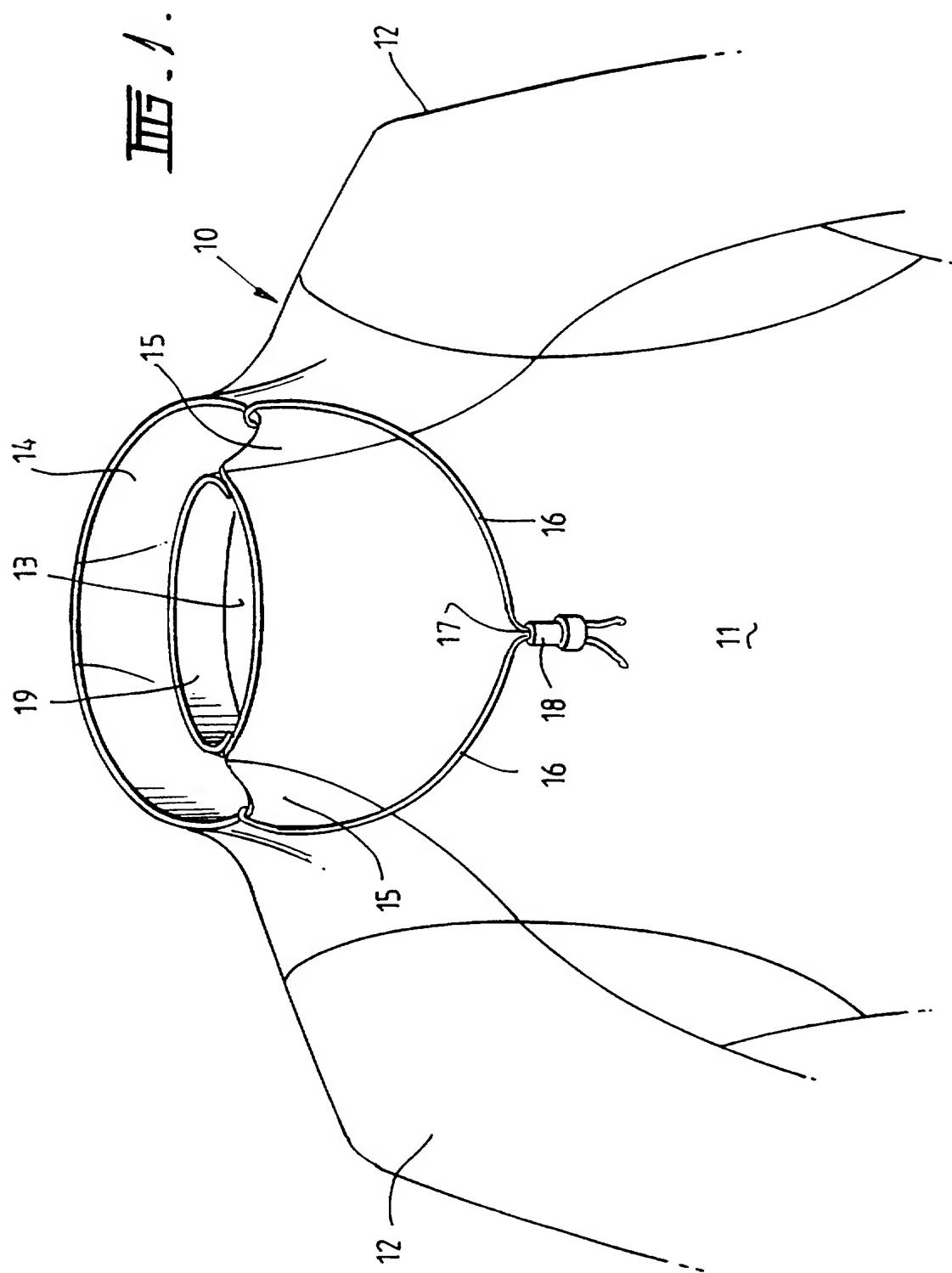
10 The wetsuit of this second preferred embodiment also has a second neck piece 30 couple at 31 to either side of the collar at the front thereof and adapted to be also stretched are then pulled over the head of the wearer and to a position around the neck outside the foldable collar 15 to complete the closure of the neck of the wetsuit and to provide a still further enhanced water seal.

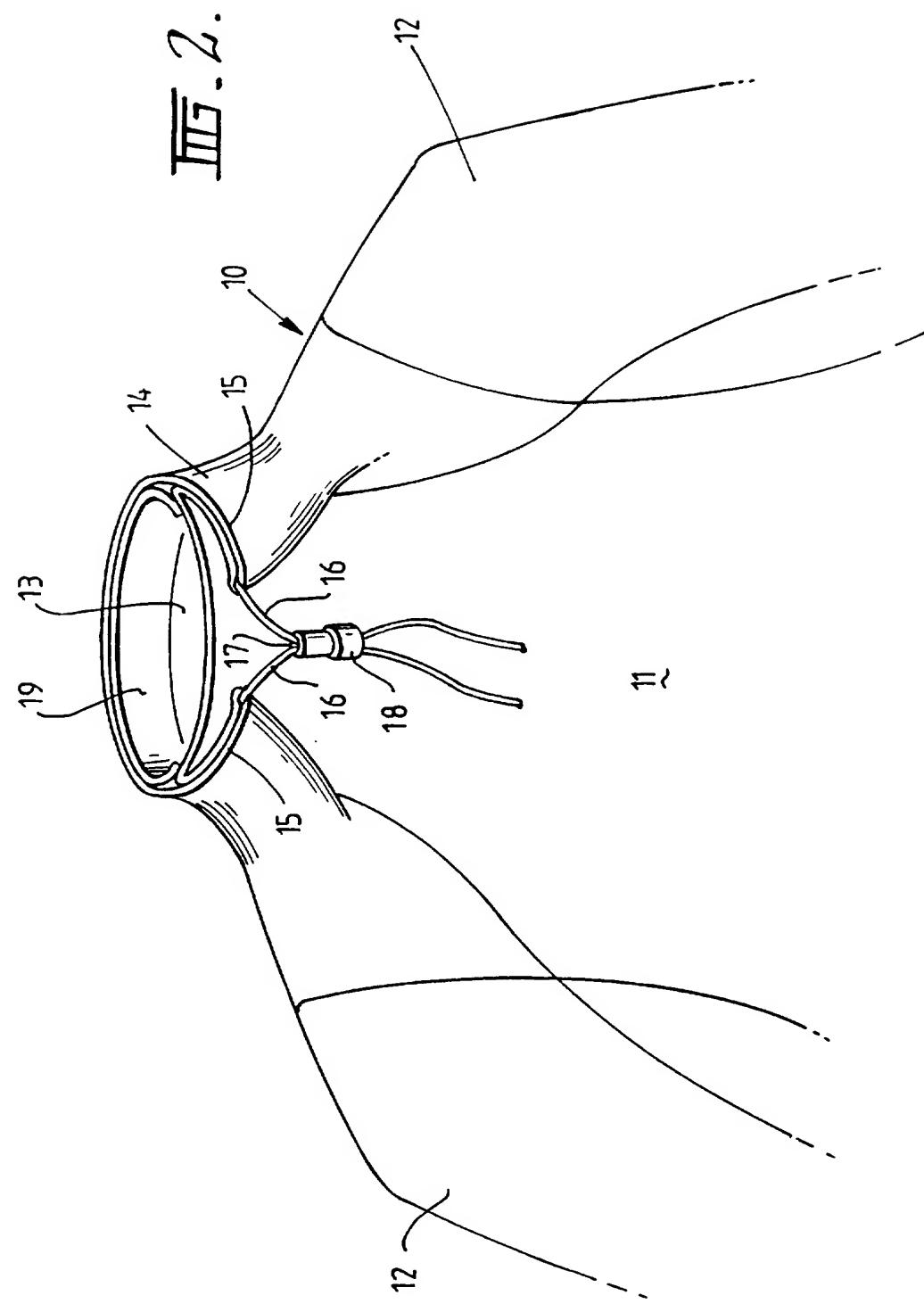
20 The wetsuit without zippers described above are therefore more easily accessible than those referred to in the description of the Background Art, whilst at the same time providing an effective water seal around the neck of the wearer.

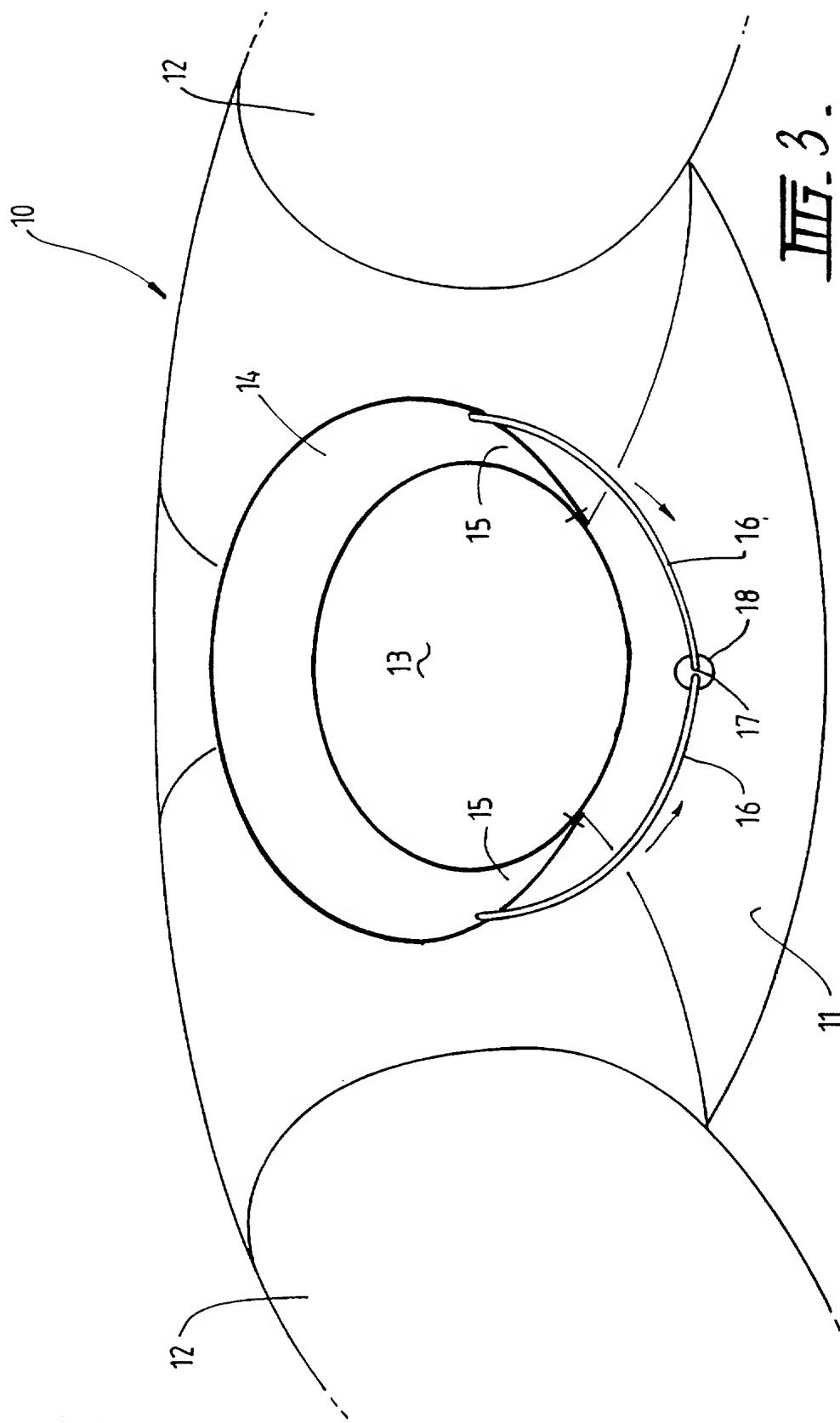
## CLAIMS:

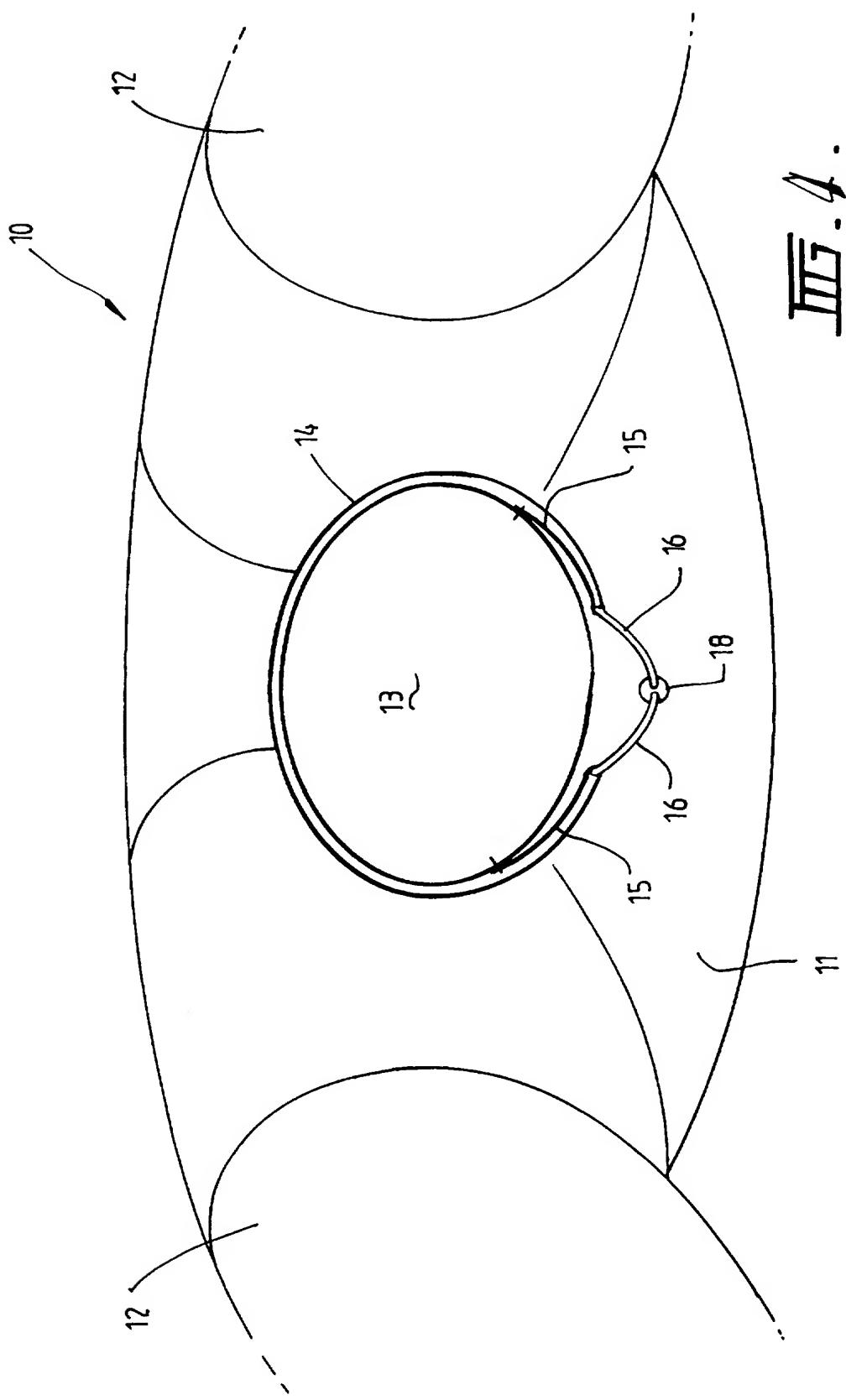
1. A wetsuit having a trunk portion, and leg portions integral therewith, and a foldable collar surrounding a neck opening whereby in an unfolded state an access opening through the top of the trunk portion is provided which is sufficiently large, or sufficiently large when stretched, to allow body entry or removal therethrough, and means to draw the collar into, and hold it at, a folded condition sitting snugly around the neck of the wearer.
2. A wetsuit as claimed in Claim 1, wherein the means to draw the collar into, and hold it in, the folded condition are draw cords attached to the foldable portions of the collar.
3. A wetsuit as claimed in Claim 1, wherein the means to draw the collar into, and hold it in, the folded condition is a Velcro or like fastener extending between the foldable portions of the collar when in the folded condition.
4. A wetsuit as claimed in any one of the preceding claims, wherein at least one neck piece is provided attached to the foldable collar and adapted to be stretched over the head of the wearer to enhance the water seal around the neck of the wearer.
5. A wetsuit as claimed in Claim 4, wherein the neck piece is attached to the back of the foldable collar.
6. A wetsuit as claimed in Claim 4, wherein the neck piece is attached to the front of the foldable collar.
- 35 7. A wetsuit as claimed in Claim 4, wherein neck pieces are attached to both the back and the front of the foldable collar.

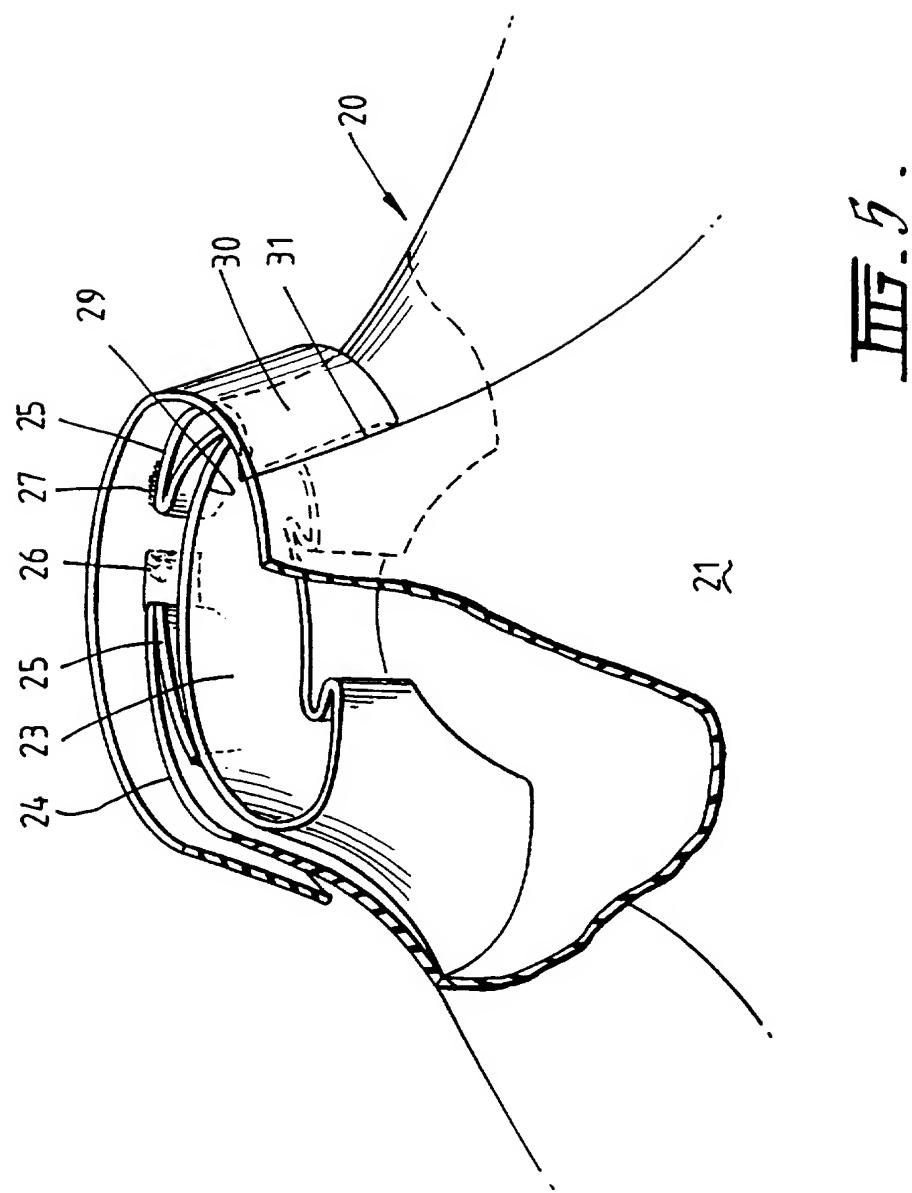
8. A wetsuit substantially as hereinbefore described  
with reference to either Figures 1 to 4, or Figures 5 to 7,  
5 of the accompanying drawings.

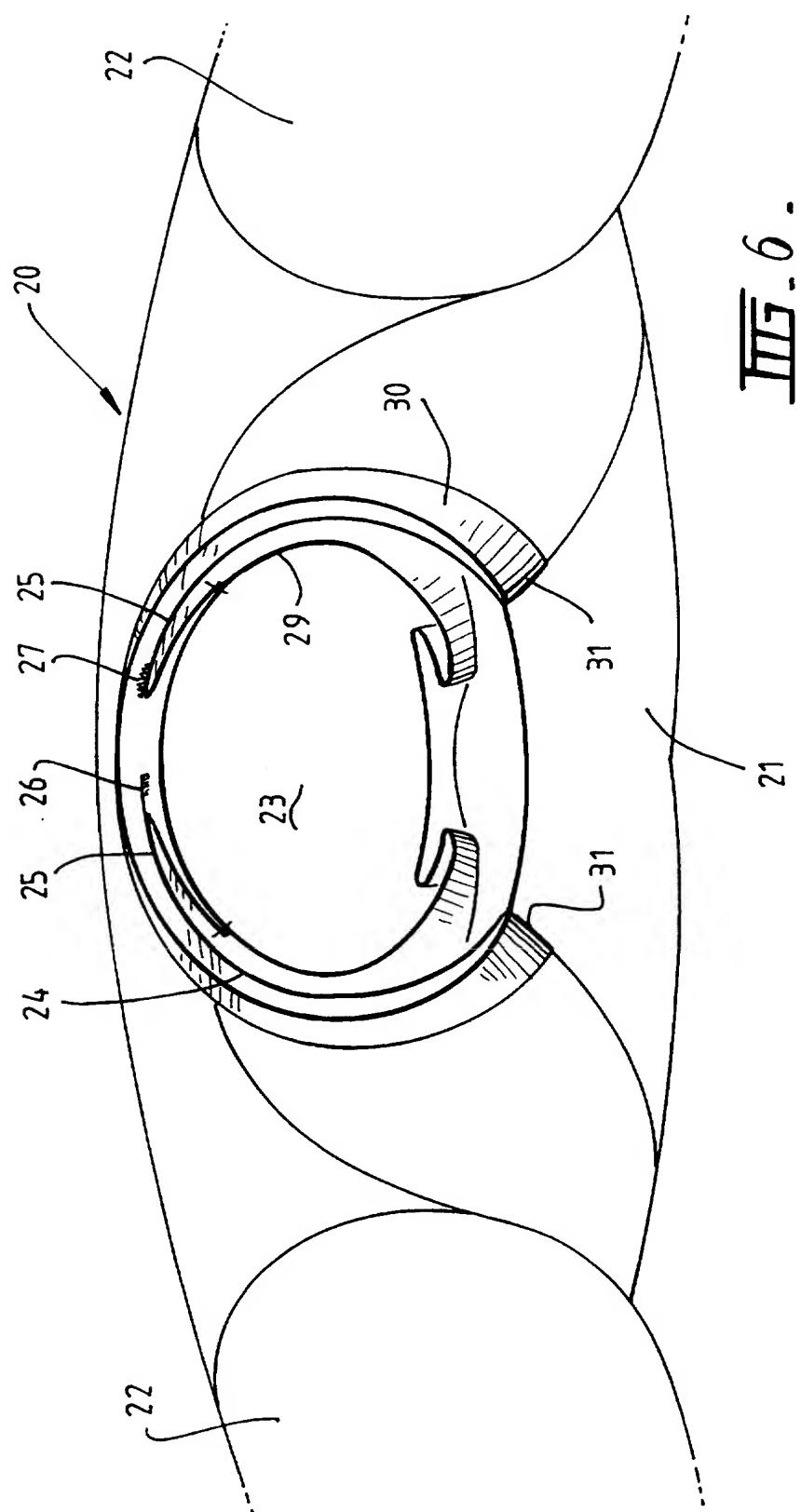


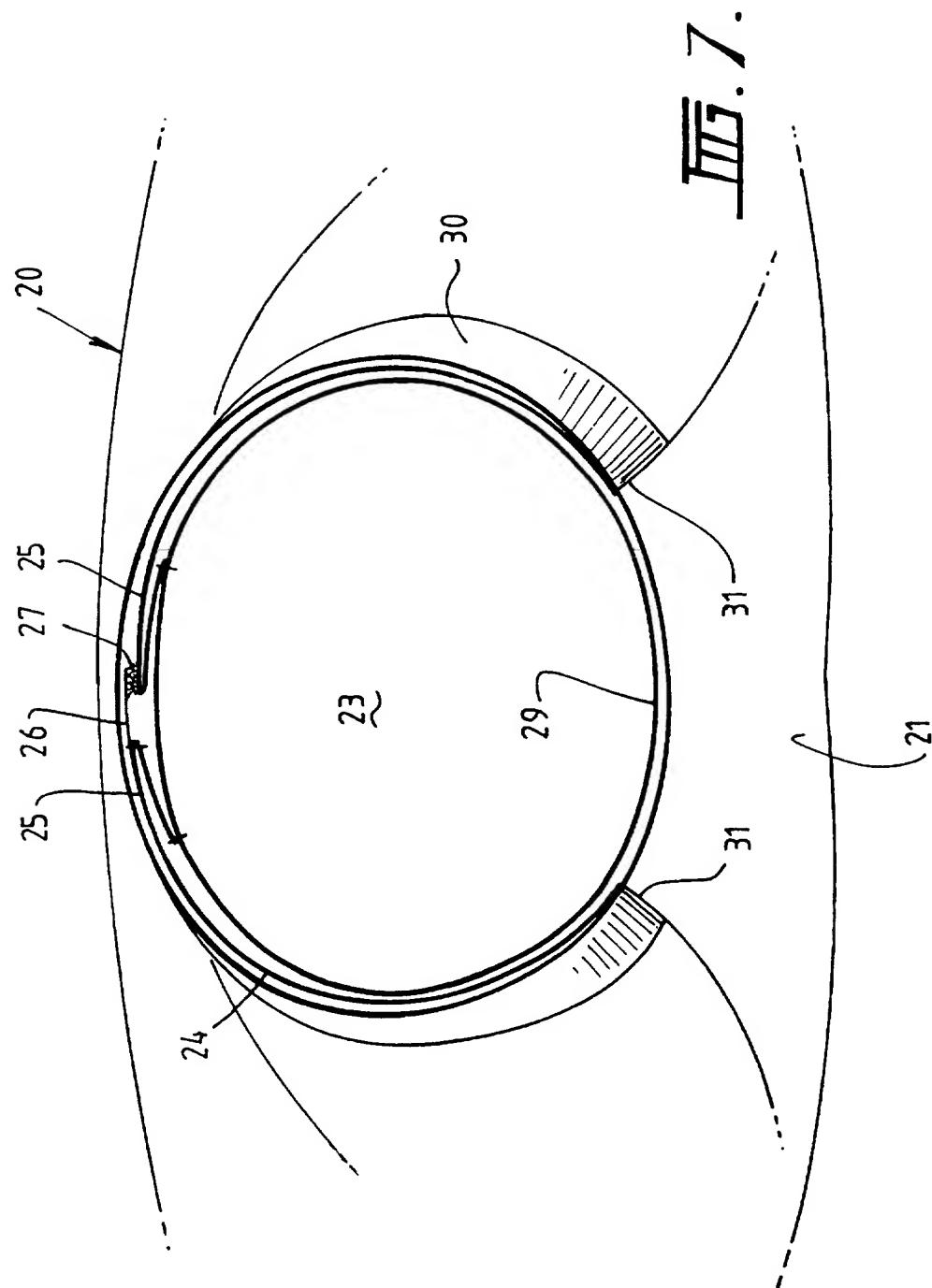












# INTERNATIONAL SEARCH REPORT

International Application No.

PCT/AU 97/00430

## A. CLASSIFICATION OF SUBJECT MATTER

Int Cl<sup>6</sup>: B63C 11/04, 9/087

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC : B63C 11/04, 9/087, A41D 7/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

AU : IPC as above

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

DERWENT : NECK# or COLLAR#

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A, P	US 5630229 A (MACHADO ET AL) 20 May 1997	1
A	US 5196240 A (STOCKWELL) 23 March 1993	1
A	US 4494246 A (TILLBROOK) 22 January 1985	1



Further documents are listed in the continuation of Box C



See patent family annex

* Special categories of cited documents:	
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**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

International Application No.  
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This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report				Patent Family Member			
US	5630229	AU	52374/96	AU	3017/95		
US	5196240	AU	20015/92	WO	9217284	US	5359735
US	4494246	EP	66399	GB	2110069	GB	2107171

**END OF ANNEX**